

The Impact Mechanism of Unconscious Priming on Consumer Decision-Making: Cognitive Load as a Moderating Factor

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Abstract. From the last century to the present, whether consumer purchasing decisions are related to unconsciousness has always been a core issue. This article, as a literature review paper, systematically reviews the theoretical and empirical research on the relationship between unconscious priming, cognitive load, and consumer decision-making. The results of this review paper have found that unconscious priming mainly affects consumer decision-making through three pathways. High cognitive load enhances this effect through information presentation, product form, and the shopping platform environment, which decreases the ability to analyze rationally and then changes consumers' decision-making strategies. These findings indicate that the impact of unconscious priming on consumer decision-making is not determined by fixed factors alone but is also influenced by consumer cognitive load. This article not only represents theoretical contributions to the unconscious cognition of psychology, helping consumers better understand their own motivation, but also provides valuable strategic references for marketing practice, which helps to better understand consumer behavior and formulate more ethical strategies to improve the overall economy.

Keywords: Consumer Decision-Making, Unconscious Priming, Cognitive Load, Priming Effect, Consumer Behavior

1. Introduction

Decision-making runs through almost everyday life. For example, students compare the functions of different devices when buying them to determine which one is more suitable for their studies. Consumers may compare different prices and brands when choosing food in supermarkets. Similarly, consumers in shopping malls make their buying decisions based on their personal preferences and actual needs, among whom some may prefer hip-hop style, while others may prefer a gentle style. This seemingly simple behavior involves certain information processing and judgement. According to research in cognitive psychology, most human behavior is driven by unconscious priming in consumer contexts [1]. Researchers have observed this phenomenon in several experiments. For example, participants who were unconsciously exposed to the Apple brand logo performed better on the creativity task [2]. The metaphorical advertisements tend to stimulate

positive neural responses [3]. Consumers are more inclined to choose bundled products rather than purchasing individual items under high cognitive load conditions [4]. There have been numerous studies indicating that unconscious priming has a certain impact on consumer decision-making, but currently there is relatively little research on the conditions under which this effect will be enhanced. Although studies have found that cognitive load increases and changes people's behavior when processing multiple tasks simultaneously, research on how high cognitive load influences the unconscious process has focused more on general decision-making rather than consumer decision-making. The topic studied in this article is closely related to unconscious cognitive psychology, in which this research topic has both important theoretical and practical value, such as providing strategies for more effective marketing methods through unconscious priming boundary conditions. It can also help consumers recognize some hidden factors that influence their decision-making, improving overall efficiency. Overall, the main structure of this article is roughly composed of five parts, including introducing three main concepts, exploring the impact of unconscious priming on consumer decision-making, analyzing how cognitive load amplifies this effect, discussion and suggestions, and conclusion.

2. Core concepts

This research paper focuses on three core concepts: consumer decision-making, unconscious priming, and cognitive load. Specifically, it studies how unconscious priming affects consumer decision-making and how cognitive load strengthens or weakens this influence. According to the Business Dictionary, consumer decision-making refers to the process including need recognition, information search, product evaluation, purchase choice, and post-purchase response to satisfy consumers' own needs and desires [5]. However, at the level of unconscious cognitive psychology, many behaviors and decisions are influenced unconsciously, and unconscious priming may impact consumers at different stages. Unconscious priming is the key concept that this article focuses on. It refers to a procedure that environmental cues such as brand logos, product color, and online store layout can activate psychological associations in the mind and influence behavior later without individual awareness. This consists of four parts: lack of awareness, unintentional activation, efficiency, and lack of personal control [1]. Similarly, cognitive load is crucial in consumer decision-making. When consumers make choices, they often need to integrate different types of information, such as comparing different options or being distracted by the shopping environment. Cognitive load is defined as the burden that a task imposes on working memory, encompassing mental effort, time pressure, and complexity of information processing [6]. These three concepts form the theoretical basis for this research: consumer decision-making is the dependent variable, unconscious priming is the independent variable, and cognitive load is the moderating variable.

3. The main influence of unconscious priming on consumer decision-making

The influence of unconscious activation on consumer decisions can be discussed in three aspects: how consumers respond to sensory cues, how brand associations are activated, and how emotions are transferred to the products. Based on the research, most human behavior is not driven by conscious rational decision-making, but by unconscious psychological processes [1]. For example, there is a neurophysiological experiment that provides empirical evidence for the impact of advertising stimuli on consumer responses [3]. To be more specific, this experiment involved 43 participants, 22 females and 21 males, who were exposed to stimuli from 28 different levels of complexity of advertisements. In addition, the researchers recorded the participants' reactions to

these advertisements through electroencephalography (EEG), eye tracking (ET), and skin conductance response (SCR). These results indicate that metaphorical advertisements are more likely than non-metaphorical advertisements to elicit positive neurophysiological responses, which may further increase consumers' purchase intentions. Furthermore, unconscious priming may affect consumers' decisions through three main pathways: semantic association, brand-related activation, and emotional transfer. First, it illustrates the automatic semantic connection between physical sensations (odor, temperature) and abstract concepts, which share the same brain region called the insula [7]. Neuroscience research has found that this brain region is activated both when a person holds something warm in the hand and when the person engages in warm social interactions with family members. Secondly, in the 2008 experiment conducted by Fitzsimons et al., participants were unconsciously presented with two different brand logos where the participants have no memory of and then asked to come up with creative uses for the paper clips [2]. The result showed that participants who were exposed to Apple came up with more creative uses than those who saw the IBM mark. This is because the Apple brand is often associated with the word that related to innovation; when consumers are exposed to the Apple brand logo in the shopping centre, their unconscious impressions of creativity are activated, which makes people more inclined to choose the Apple brand when buying electronic products [7]. Therefore, stimuli such as advertising slogans, brand colors, and product packaging may first shape consumers' attention, familiarity, and product preferences, which in turn affect subsequent purchasing decisions. Lastly, there is the emotional transfer pathway, in which the environment can unconsciously induce the individual's emotional state and then mistakenly attribute the evaluation of the product. For example, a classic study found that male participants who had crossed a thrilling suspension bridge were more likely to mistake their own anxiety and accelerated heartbeat for sexual attraction from female experimenters [8]. In daily life, advertisements during entertainment programs directly affect viewers' consumption of snacks increase by 45% [9]. People may experience certain types of emotion triggered by advertisements and unconsciously transfer these emotions to consumption behaviour. Overall, these three pathways may work together in actual consumption situations: semantic associations guide interpretation, brand-related cues activate stored impressions, and emotional transfer shapes the final evaluation of the product.

4. The amplification effect of cognitive load

Cognitive load can be regarded as a moderating factor that affects the degree to which unconscious priming influences consumer purchasing decisions. According to the cognitive load theory, the capacity of human working memory is limited. The more information an individual deals with during the consumer decision-making process, the scarcer their cognitive resources become [10]. Increasing their sensitivity to environmental cues such as brand logos or promotional information. For example, when consumers are under time pressure or have to process a large amount of product information, they may rely on intuition and easily accessible cues, which can amplify the unconscious priming effect. To better explain this mechanism, a non-hypothetical shopping experiment was conducted to study how cognitive load changes consumer product choices in real-life strategies [4]. In this study, participants completed a real food purchase task under high and low cognitive load conditions. Some products were presented in the form of bundles or with discounts. The results showed that under the influence of high cognitive load, consumers were more inclined to choose bundled products, such as meal deals, even without discounts, rather than choosing individual products. The probability of buying bundled goods is 3.98 times higher than for consumers who are under no-load conditions. Bundled products can reduce the amount of

information processing required under the high cognitive load condition, shifting their focus from analysing and comparing each item to making an overall judgement and making them more responsive to simple decision cues. This precisely aligns with the psychological mechanism where the unconscious priming effect is amplified. Furthermore, another 2 x 2 experiment investigated the impact of information presentation format on cognitive load, although the following experiment is not directly related to the daily shopping condition, it still provides valuable references for the effectiveness of decision difficulty made by the level of cognitive load [11]. In addition, participants were randomly assigned to four different experimental groups. This experiment compared the conditions between high- and low-cognitive-load movies to investigate how the task complexity of these movies affects the participants' difficulty in decision-making. Each movie presents two forms of comments; one is AI-generated bullet points, and the other is the original paragraph-based comments. The result indicated that for the simpler movie, the two types of comments did not have a significant impact on the cognitive load of participants. However, for movies that are more complex and require more time for information processing, the key point of the comment can reduce participants' cognitive load by approximately 11.8%. Afterwards, participants answered a survey on deciding whether to watch the movie or not, and found that when cognitive load increased, people were less willing to watch the movie. It showed that consumers experienced different levels of cognitive load when using shopping platforms, especially on the non-native platform [10]. This is because increased difficulty in understanding the content itself and unfamiliarity with navigating the platform environment decrease the efficiency of processing the information, which affects their satisfaction and willingness to repurchase products on the non-native platform. Therefore, when consumers use non-native language platforms, both their internal and external load increase significantly. In summary, high cognitive load can be influenced by external factors and internal factors such as the form of information presentation and familiarity with shopping platforms, which can weaken consumers' ability to analyze rationally. Therefore, cognitive load moderates the relationship between unconscious priming and consumer decision-making.

5. Discussion & suggestions

As a review paper, this article is limited by the fact that most of the evidence comes from laboratories or artificial environments, which may reduce the external validity of the research results. This is because in the real shopping environment, there may be more complicated external factors that are difficult to measure and control, such as cognitive load level before shopping and the type of music played in the store, and these small environmental factors may affect the effectiveness of this mechanism. Second, the references presented in this article do not adopt a unified method for measuring cognitive load and lack scientific neurophysiological indicators. In addition, it is worth noting that the unconscious priming effect remains controversial in academia, such as the well-known intelligence priming experiment [12]. To be more specific, this experimental result overturns a 1998 experiment, in which the people who thought about professors' characteristics before the experiment started did not answer more questions correctly than those who thought about football hooligans. Therefore, it triggers academic debate on the reliability of unconscious activation. Based on the above findings, future research can consider verifying these findings in reality and introducing more objective measurement methods for cognitive load, such as EEG and eye tracking. More importantly, future research should examine individual differences in each person because consumers in reality come from different age and cultural backgrounds because younger consumers may be more suitable to go with digital platforms, while elderly consumers may prefer offline consumption habits. In terms of cultural differences, some cultures have a higher acceptance of

high-tech, while others may rely more on traditional shopping methods. If future research can address the deficiencies, it can further deepen the understanding of how unconscious priming shapes consumer choices.

6. Conclusion

Overall, through the analysis of existing literature, research has found that unconscious priming mainly affects consumer decision-making through three pathways. Firstly, there is a semantic association pathway where the brain automatically links physical touch and abstract concepts. Secondly, the brand activation pathway, where brand identity and advertising can unconsciously influence consumers' goals. Thirdly, there is emotional transmission, where consumers mistakenly attribute their emotions to products or services. These three paths often interact with each other to impact consumers' consumption behaviors. This review further found that cognitive load played a crucial moderating role between unconscious priming and decision-making. To be more specific, when cognitive load is high, consumers have low analytical ability and are more likely to rely on obtainable environmental clues, thereby amplifying this priming effect. The research papers in this review are mainly based on lab environments, with limited external control factors and there is a lack of unified, digital standards of measurement for cognitive load. For future research, should further confirm these findings in the real shopping scenarios, considering individual differences such as age and culture

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